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State of Utah

Department of
Natural Resources

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OR

November 5, 2004

Gary E. Gray, Resident Agent
West Ridge Resources, Inc.
P.O. Box 1077
Price, Utah 84501

Re: Deficiencies for Division Order (DO-00A issued on April 6, 2000), West Ridge Resources, Inc., West Ridge Mine, C/007/0041, Task ID #1940, Outgoing File

Dear Mr. Gray:

The above-referenced amendment has been reviewed. There are deficiencies that must be adequately addressed prior to approval. We have a meeting scheduled with you on November 22, 2004 at 1:00 p.m. in our office. In order for us to continue to process your application, please respond to these deficiencies by February 8, 2005.

If you have any questions, please call me at (801) 538-5268 or Wayne Western at (801) 538-5263.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

an
Enclosure
cc: Price Field Office
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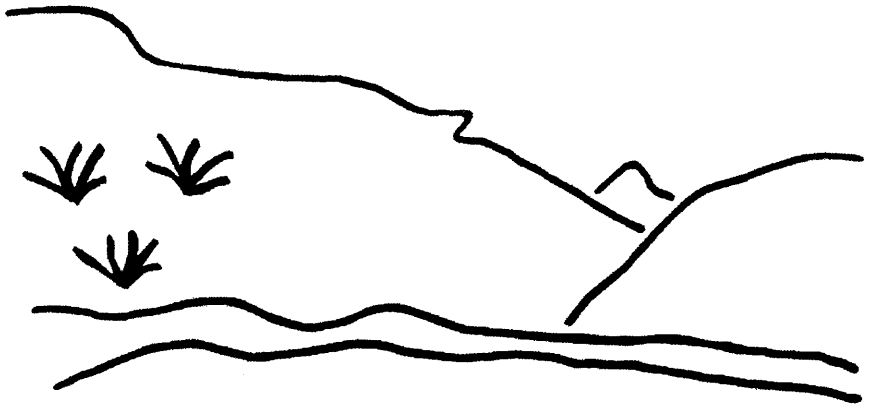

Utah Oil Gas and Mining

Coal Regulatory Program

West Ridge Mine
Division Order 4-6-00
C/007/0041, Task ID #1940
Technical Analysis
November 3, 2004

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TECHNICAL ANALYSIS

The Division ensures compliance with the Surface Mining Control and Reclamation Act of 1977(SMCRA). When mines submit a Permit Application Package or an amendment to their Mining and Reclamation Plan, the Division reviews the proposal for conformance to the R645-Coal Mining Rules. This Technical Analysis is such a review. Regardless of these analyses, the Permittee must comply with the minimum regulatory requirements as established by SMCRA.

Readers of this document must be aware that the regulatory requirements are included by reference. A complete and current copy of these regulations and a copy of the Technical Analysis and Findings Review Guide can be found at http://ogm.utah.gov/coal

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings, which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the first technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference, which describes the minimum requirements. In this Technical Analysis we have summarized the deficiencies at the beginning of the document to aid in responding to them. Once all of the deficiencies have been adequately addressed, the TA will be considered final for the permitting action.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

TECHNICAL ANALYSIS

INTRODUCTION

When the Permittee encountered burnt coal during construction of the portal at the West Ridge Mine, they determined that the approved construction plan in the MRP could not be followed. The Permittee constructed a higher and steeper highwall than what was approved. The approved reclamation plan was inadequate to deal with the new highwall. Therefore, the Division required that West Ridge Resources, Inc. modify the reclamation plan.

The Division Order 00A (DO-00A) was written April 6, 2000. Information submitted in response to the DO 00A has been reviewed by the Division on the following dates: November 30, 2000, September 21, 2001, April 12, 2002, October 10, 2002, June 16, 2003 and June 1, 2004.

In the first six submittals, West Ridge Resources, Inc. proposed to reclaim the highwall by increasing the slope angle. West Ridge Resources, Inc. later abandoned that tactic and adopted a strategy to move the base of the slope so that a gentler slope could be constructed. In order for that to occur West Ridge Resources, Inc. will have to disturb part of the experimental practice area.

Appendix 5-9, Alternate Highwall Reclamation Plan, describes a reclaimed slope with an angle between 31.2 to 33.6 degrees (approximately 15H:1V to 1.65H:1V). This alternate plan will extend the toe of the slope to the northwest into the existing experimental practice topsoil storage location, requiring a 40-foot lateral displacement of the reclaimed stream channel for a distance of 500 feet.

The proposed reclamation plan (Appendix 5-9) will use a smaller vertical slope angle. The Division believes that Appendix 5-9 will be l better plan for the reclamation of the highwall because:

- The Permittee is more likely to achieved slope stability with a gentler slope.
- Only 0.74 acres of the experimental practice area will be affected while the remaining 16.10 acres will be unaffected.

The disadvantages to the proposed reclamation plan in Appendix 5-9 are:

- The relocation of the stream channel.
- Disturbance of the experimental practice area.

INTRODUCTION

SUMMARY OF DEFICIENCIES

The Technical analysis of the proposed permit changes cannot be completed at this time. Additional information is requested of the Permittee to address deficiencies in the proposal. A summary of deficiencies is provided below. Additional comments and concerns may also be found within the analysis and findings made in this Draft Technical Analysis. Upon finalization of this review, any deficiencies will be evaluated for compliance with the regulatory requirements. Such deficiencies may be conditioned to the requirements of the permit issued by the division, result in denial of the proposed permit changes, or may result in other executive or enforcement action and deemed necessary by the Division at that time to achieve compliance with the Utah Coal Regulatory Program.

Accordingly, the Permittee must address those deficiencies as found within this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

Regulations

R645-301-121.100, The Permittee refers to the 40-degree slope as the approved plan (Plates 1, 2, and 3 of Appendix 5-9). Once all deficiencies in the Alternate plan presented in appendix 5-9 are resolved, the Permittee must revise plates and narrative to indicate that appendix 5-9 is the **preferred** reclamation plan. 21

R645-301-121.200, The Permittee should verify the acreage of buried topsoil in the experimental practice to be affected by the Alternate Highwall Reclamation plan as stated in Section II, Appendix 5-9, because Division calculations indicate that 15.5% of the buried topsoil will be affected rather than 7.4%. 33

R645-301-131, The application must include the sample location(s) and geotechnical soil analyses conducted to document the characteristics of the backfill material and referenced in appendix 5-9..... 10

R645-301-222.300, The application must include the topsoil and subsoil evaluations by Colorado Analytical laboratories, Inc. 12

R645-301-231, The Permittee verbally indicated that fill was not brought to the West Ridge Mine site from the gravel pit: Appendix 2-5 should be revised accordingly..... 13

SUMMARY OF DEFICIENCIES

SUMMARY OF DEFICIENCIES

GENERAL CONTENTS

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

West Ridge Resources, Inc. did not meet the minimum requirements for including technical data in the June 1, 2004 submittal (Appendix 5-9, West Ridge Mine Proposed Highwall Reclamation) because they did not include technical data in the June 1, 2004 submittal that was in previous submittals.

Although Appendix 5-9, section III indicates the reclamation plan is based upon soil information gathered by West Ridge Resources personnel and Agapito Associates in December 2002, the sample location(s) and the laboratory analyses documenting the characteristics of the soils to be used as backfill was not found in Appendix 5-9 (formerly found in Appendix A of the AAI report). The Division needs that information to evaluate the proposed reclamation plan. The missing technical data consists of:

- Geotechnical soil analyses conducted in January 2003 by Advanced Terra Testing.
- Chemical characteristics of the topsoil and backfill (subsoil) material conducted by Colorado Analytical laboratories, Inc.

Technical information that was included in the June 1, 2004 submittal included:

- Information gathered by West Ridge Resources, Inc. personnel.
- Information from Agapito Associates, Inc. (AAI) in December 2002, Appendix 5-9, Sec III.
- Calculations done by Dan Guy, Blackhawk Engineering.
- Mt. Nebo Scientific supplied the revegetation and erosion control methods, see Appendix 1-6.

Findings:

The information does not meet the requirements for reporting of technical data. Prior to approval, West Ridge Resources, Inc. must include the following information with the application, in accordance with:

R645-301-131, The application must include the sample location(s) and geotechnical soil analyses conducted to document the characteristics of the backfill material and referenced in appendix 5-9.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

Colorado Analytical laboratories, Inc., Brighton, Colorado conducted sampling of the topsoil and subsoil in 2002. This information was included with information received by the Division March 17, 2003, but was not provided with this application. A deficiency has been written to request the topsoil and subsoil sampling information.

A description of the predisturbed soils near the highwall is located in Appendix 2-2. Map 2-2 identifies the soils as Midfork, very stony fine sandy loam, 10 – 50% slopes and shows Pit 14 in the immediate area of the highwall. In his January 15, 1997 Soil Resource Assessment, Mr. James Nyenhuis described the soils on the slopes thusly:

It (the Midfork map unit) is located primarily along the more densely vegetated south slope (north-facing slope) of the right fork drainage. Present vegetation is mainly Douglas-fir and snowberry. The average annual precipitation is 16 to 20 inches, and the average freeze-free period is 60 to 80 days.

The M map unit is 75% Midfork, and 10% Rubbleland, 10% Commodore, and 5% Rock Outcrop. Midfork is deep to very deep, well drained. Effective rooting depth is 60 inches or more. Commodore is similar to Midfork but is shallow (<20 inches) to bedrock. Commodore was not sampled because it is a minor inclusion. Typically, the surface of Midfork is covered by an organic layer of twigs, leaves, and needles about 1.5 inches thick. The very dark grayish brown to brown "A" horizon is 5 – 7 inches thick and has gravelly to very stony fine sandy loam-to-loam texture. Total rock fragment content of the "A" horizon ranges from about 17 – 35% and can include about 10% gravel, 5 to 10% cobble or flagstone, and 2 – 15% stones and boulders.

The underlying subsoil layer is typically from about 7 to 18 inches in depth, and has very cobbly sandy loam-to-loam texture. Total rock fragment content of the subsoil ranges from about 7 to 40% and can include 5 to 15% gravel, 5 to 15% cobble or flagstone, and 1 to 15% stones and boulders. The substratum extends from the subsoil to a depth of 60 inches or more

and has very gravelly to very stony sandy loam-to-loam texture. Total rock fragment content of the substratum ranges from about 35 to 40% and can include 10 to 15% gravel, 10 to 15% cobble or flagstone, and 10 to 20% stones or boulders. (Appendix 2-2, pp 14 - 15).

Findings:

The information provided in the plan does not meet the soil resource requirements of the Regulations. Prior to approval, the application must include the following information in accordance with:

R645-301-222.300, The application must include the topsoil and subsoil evaluations by Colorado Analytical laboratories, Inc.

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

The MRP describes the importation of fill material from the gravel pit and replacement of the fill to the gravel pit at final reclamation (Appendix 2-5 and Addendums). Map 5-11 Construction Sequence, illustrates the different stages of construction for the West Ridge Mine site. Steps 7 shows completion of the pad level by hauling in imported fill from offsite, commercial gravel borrow areas. Step 8 shows a final cap layer of road base material placed over the imported fill surface.

Apparently, the imported fill was not needed, because the Permittee has recently stated that imported bedding material was used around the culvert only, with the rest of the fill generated from the cuts and a surface layer applied from the gravel pit (communication between Priscilla Burton and Mr. Gary Gray and Mr. Dave Shaver on April 29, 2003).

Findings:

The information provided does not meet the requirements of Operation Plan, Mining Operations and Facilities. Prior to approval, the Permittee must provide the following:

R645-301-231, The Permittee verbally indicated that fill was not brought to the West Ridge Mine site from the gravel pit: Appendix 2-5 should be revised accordingly.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Soils from the highwall slope were salvaged to a depth of 18 inches. Mr. Nyenhuis indicated that below this depth, the rock fragment content exceeded 35 – 40% and 20% of that was large stones and boulders (Appendix 2-2, page 15).

This submittal revises page 30 of Appendix 5-5 to indicate that there is no topsoil storage area in the left fork (ASCA Y has been eliminated). The area is dedicated to coal storage. Map 2-2, Mine site Order 1 Soil Survey has been revised accordingly. Sample site locations have been retained on Map 2-2. (The commitment to sample the soil of the operations pad over the next five years is described in the Annual Report year 2000.)

Revised Map 2-4, Topsoil Storage Area provides cross-sections and a profile of the topsoil stockpile, indicating that 7,613 cu yards of soil are presently stored in the topsoil storage area. Reclamation of the highwall area while retaining the stream channel in its original configuration would result in a roughly triangular in shape fill, with a base of 300 ft and a height of 85 ft (March 17 submittal: page 3, App 5-9). The Division estimates the area of the reclaimed highwall slope would therefore be no less than 12,750 sq ft or one third of an acre and would require approximately 500 CY of topsoil at a twelve-inch replacement depth. The Alternate Highwall Area Reclamation Using a Smaller Vertical Angle Slope (Appendix 5-9) would extend the topsoil coverage requirement 80 feet, for a distance of 400 feet (Sec II, Appendix 5-9), using an additional 20 – 35 CY, at a replacement depth of one foot to eighteen inches.

The Alternate Highwall Area Reclamation Using a Smaller Vertical Angle Slope (Appendix 5-9) will affect 0.74 acres of buried topsoil. The Permittee intends to salvage this topsoil during channel reconstruction for use at final reclamation (Appendix 5-9, Sec II).

Topsoil Substitutes and Supplements

As a contingency plan to the Experimental practice, borrow area soils were identified and described (MRP, sec R645-301-224 and Appendix 2-4). Map 2-4 locates the borrow soils and provides reclamation contours for the borrow site. The plan indicates in Appendix 2-6, page 23 that these soils would be utilized only if needed during final reclamation.

Findings:

The information supplied meets the operation plan, topsoil/subsoil requirements of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Mining Facilities Maps

West Ridge Resources, Inc. reclamation plan is based on the mine facilities maps. The mine facilities maps were based on the assumption that 100,000 CY of material would have to be imported. West Ridge Resources, Inc. only imported minor amounts of fill that were needed for culvert installation.

In order to develop an effective reclamation plan the operational maps must be accurate. West Ridge Resources, Inc. must verify either that the surface facilities maps including surface configuration are accurate or develop new ones.

Findings:

The Division considers information in the application inadequate to meet minimum regulations associated with the TA section Maps, Plans and Cross Sections of Mining Operations - Operation Plan. Prior to approval, West Ridge Resources, Inc. must act in accordance with the following:

R645-301-526.220, West Ridge Resources, Inc. must state either that the operational maps show the correct surface configurations or supply the Division with an as-built. The Division needs accurate contour maps of the surface facilities area in order to evaluate the reclamation plan.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The plan includes reclaiming all disturbed areas not planned for use as contemporaneously as possible and within the constraints of seasonality. The seed mix (Table 3-3) includes native grasses and forbs except for alfalfa. This species is not native and constitutes a very high proportion of the forb ratio. The Division no longer supports the use of this species. West Ridge Resources (West Ridge Resources, Inc.) must either replace this species with a native forb or adjust the remaining species to maintain an approximate rate of 20 pounds per acre.

Findings:

The Division considers information in the application inadequate to meet minimum regulations associated with the TA section Contemporaneous Reclamation - Reclamation Plan. Prior to approval, West Ridge Resources, Inc. must act in accordance with the following:

R645-301-353.120, either replace alfalfa with a native forb or adjust the remaining species to maintain an approximate rate of 20 pounds per acre.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The requirements to achieve approximate original contour restoration are a combination of performance standards for backfilling and grading, hydrology, postmining land use and revegetation. The performance standards include:

- Minimization off-site impacts.
- The final surface configuration closely resembles the general surface configuration of the land prior to mining.
- The topsoil/growth media are adequate to support the vegetation requirements.
- Erosion is minimized.
- The land is able to support the approved postmining land use.

The intent of the approximate original contour regulations is not to restore a site to the approximate premining elevation. Rather the intention of the regulations is to ensure that the reclaimed site has slope lengths and gradients that are within acceptable limits.

The main criterion that the Division uses to determine if AOC has been achieved is whether the postmining topography, excluding elevation, closely resembles its premining configuration. In addition the Division takes into consideration soil, climate and other pertinent characteristics of the surrounding area in evaluating the adequacy of final graded slopes. In arid or semi-arid areas, vegetation alone may not adequately control erosion on steep slopes. Therefore, the Division will closely evaluate the slope gradients of reclaimed areas to ensure effective erosion control. In addition to the general requirements there are also specific regulatory requirements that must be achieved that include:

- Eliminate all highwalls.
- Eliminate all spoil piles.
- Eliminate all depression with the exception of small depressions needed to retain moisture, minimize erosion, create and enhance wildlife habitat or assist revegetation.
- All slopes will have a static safety factor of 1.3 or greater and not exceed the angle of repose.
- Minimize erosion and water pollution both on and off site.
- Support the postmining land use.

The R645-301 regulations specifically state that all highwalls must be eliminated with some exceptions for pre-SMCRA sites. Since the site was developed post-SMCRA, all highwalls must be eliminated.

The main reason West Ridge Resources, Inc. proposes to modify the reclamation plan is to ensure that total highwall elimination is achieved. During construction of the mine site, the height of the highwalls exceeded the approved design.

Appendix 5-9 contains Plate 1, Plate 2 and Plate 3, which show the reclamation of the highwalls and surrounding areas. Plate 1 and Plate 3 are topographic maps that show the reclaimed site, while Plate 2 shows the cross sections. The start and stop points of the highwalls

are not shown on Plate 1 or Plate 3. In order for the Division to make a finding, Plates 1 and Plate 3 must show highwall boundaries and Plate 2 must show cross sections above and below the highwalls.

There are no spoil piles at the West Ridge Mine. No depressions will be left with the exception of small depressions (pocks) that are needed to retain moisture, minimize erosion, and create microenvironments suitable to plant growth.

The Permittee stated in Appendix 5-9 (submittal task 1940) that all reclaimed slopes will have a static safety factor of 1.3 or greater and the slope angle will not exceed the angle of repose. See the backfilling and grading sections of the TA for more details.

Erosion and water pollution at the reclaimed site will be minimized. See the hydrology section for a full discussion.

The reclaimed site will be compatible with the approved postmining land use. See the postmining land use section of the TA for more information.

Findings:

The information provided in the application is not considered adequate to meet the minimum requirements of the regulations. Before approval, West Ridge Resources, Inc, must provide the following in accordance with:

R645-301-542.310, West Ridge Resources, Inc. must modify Plate 1and Plate 3 so that they show the extent of the highwalls; Plate 2 must show the cross section above and the cross section below the highwall.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

The specific backfilling and grading requirements are:

- Achieve the approximate original contour requirements.

- Eliminate all highwalls, spoil piles and depressions.
- Achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long-term static safety factor of 1.3 and to prevent slides.
- Minimize erosion and water pollution both on and off site.
- Support the approved postmining land use.

The Division addressed the approximate original contour requirements in the approximate original contour restoration section of the TA. The highwall issue was addressed in the AOC section of the TA and will not be repeated here. No spoil piles exist or are scheduled for construction on site. No depressions will be left after final grading except for pocks that are associated with surface roughening. The requirements for minimizing water pollution are addressed in the hydrologic section of the TA. The requirements for how the postmining land use will be met are addressed in the postmining land use section of the TA.

In Appendix 5-9 West Ridge Resources, Inc. states that the safety factor for the highwall area ranges from3.62 to 4.17 for dry conditions and 2.41 to 2.70 for saturated conditions. West Ridge Resources, Inc. based safety factor calculations on charts from *Rock Slope Engineering* by E. Hoek and J. W. Bray.

The safety factor charts are based on several assumptions that include:

- The material forming the slope is homogeneous.
- Failure is assumed to occur on circular failure surface that passes through the toe of the slope.

West Ridge Resources, Inc. must state why the assumption of a homogeneous material is valid when the slope is made up of both soil and bedrock. In addition, West Ridge Resources, Inc. must also state why the a circular failure that passed through the slope's toe would occur before a failure would occur on a noncircular surface or away from the toe.

The reclaimed slope will be placed back at an angle that is similar to those in the surrounding area. The soils slope in the area are either at the natural angle of repose or at a gentler angle.

Appendix 5-9 describes a slope of 31.2 to 33.6 degrees. The backfill source was previously identified as the warehouse and portal pad (March 17, 2003 application: page 3, App 5-9 and Section III of Appendix 5-10), but the location of the backfill was not disclosed with this application, (See deficiency written under R645-301-131 and R645-301-542.200 below). Table 1 and Table 2 of Appendix 5-9 provides the backfill characteristics of density, cohesion and friction angles. The application does not include supporting laboratory analyses or provide the

location of sampling for these tables, see deficiency written under R645-301-131 and R645-301-542.200 below.

The current reclamation plan is based on the assumption that large amounts of fill material were imported to the mine site from borrow pits. West Ridge Resources, Inc. verbally indicated to the Division that enough fill material was obtained from the mine site so that only minor amounts of fill were imported for culvert installation. The approved MRP indicates in Appendix 5-5 Section 4e that backfilling and grading of the highwall will not take place until the excess fill has been removed. The Permittee should re-evaluate the potential for excess fill under the reclamation scenario proposed in Appendix 5-9 and revise the plan accordingly in Appendix 5-5 Section 4.

Information about the fill that was not included in the submittal is as follows:

- Revised cut and fill calculations must be included so that the Division can determine if there is adequate fill on site for reclamation.
- The Permittee must identify were the fill for the highwall reclamation will come from.
- The Permittee must include the site-specific geotechnical data for the highwall fill.

The Permittee continues to refer to the 40-degree slope as the approved plan (Plates 1, 2, and 3 of Appendix 5-9). Once all deficiencies in the Alternate plan are resolved, steps should be taken by the Division and the Permittee to make the Alternate plan the **preferred** reclamation plan written into the MRP.

Findings:

The information provided in the application is not considered adequate to meet the minimum requirements of the regulations. Before approval, West Ridge Resources, Inc. must provide the following in accordance with:

R645-301-121.100, The Permittee refers to the 40-degree slope as the approved plan (Plates 1, 2, and 3 of Appendix 5-9). Once all deficiencies in the Alternate plan presented in appendix 5-9 are resolved, the Permittee must revise plates and narrative to indicate that appendix 5-9 is the **preferred** reclamation plan.

R645-301-553.130, West Ridge Resources, Inc. must state why the assumptions upon which Evert Hoek's safety factor table are based on are valid for the West Ridge Site. Specially West Ridge Resources, Inc. must state why the failure surfaces would be circular, the failure surface would pass though the slope's toe and the failure surface would not go through bedrock.

R645-301-542.200, West Ridge Resources, Inc. must update the reclamation plan with the following: • revised cut and fill calculations for the mine site, • the location of the fill material to be used to reclaim the highwall area and • state where the additional fill material that will be placed against the highwall will come from • demonstrate that the physical soil characteristics of the designated fill are adequate to meet the safety factor requirements.

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

West Ridge Resources, Inc. did not change the mine openings closure plan. The plan calls for seals to be constructed and then 25 feet of backfill placed inside the portal. The closure plan meets the MSHA and Division requirements.

Findings:

The information provided in the application considered adequate to meet the minimum requirements of the regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

Soil redistribution plans for reclamation have not changed with this application and will be the same as that described for other cut slopes on the site (App 5-9, Sec I). This reclamation sequence is described in Appendix 5-5, Part II and on Map 5-12 of the approved Mining and Reclamation Plan (MRP). Key reclamation tasks are summarized in Section 3 and detailed in Section 4 as follows:

4a) Remove Surface Structures
4b) Remove Pad Cap Layer
4c) Remove Excess Pad Fill

4d) Remove Remaining Pad Fill; Backfill All Cut Slopes
4e) Reclaim Portal Highwall
4f) Reapply Topsoil to Backfilled Cut Slopes
4g) Re-expose and Revitalize the Left-in-Place Topsoil
4f) Re-establish the Original Rubbleland Surface

The approved MRP indicates in Appendix 5-5 Section 4e that backfilling and grading of the highwall will not take place until the excess fill has been removed. The Permittee should re-evaluate the potential for excess fill under the reclamation scenario proposed in appendix 5-9 and revise the plan accordingly in Appendix 5-5 Section 4e.

Findings:

The information supplied does not meet the requirements of Reclamation Plan, Topsoil Subsoil. Prior to approval, the Permittee must provide the following:

R645-301-241, The Permittee verbally indicated that fill was not brought to the West Ridge Mine site from the gravel pit, Appendix 5-5 Section 4e should be revised accordingly.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

Appendix 5-9 provides channel designs for a 100-year/6-hour storm event, as outlined in Appendix 7-4. The undisturbed channel section is designated as RC-GG, however numerous differences exist between the original channel and the designed channel. Primarily the channel has been straightened, increasing the grade from approximately 6.4 percent to 7.2 percent; eliminating the natural armoring. As outlined on page 10 of Appendix 7-4 and referenced in both "Applied Hydrology and Sedimentology for Disturbed Areas" (Barfield, Warner & Haan, 1983), and "Design Hydrology and Sedimentology for Small Catchments" (Haan, Barfield, Hayes, 1994) the limiting velocity for unlined ditches or channels is 6.0 feet/second (fps). The natural channel outlined a velocity of 7.04 fps, however that assumed the natural sinuosity of the channel and natural armoring. Based on information provided in Appendix 5-9 and the MRP, the new channel velocity of 7.04 exceeds the maximum design limits provided. West Ridge

Resources, Inc. must provide supporting calculations and designs. Appendix 5-9 needs to: 1) calculate a new flow velocity based on the increased channel slope; 2) identify how channels with velocities greater than 6 fps will be armored; 3) install additional drop structures to reduce the velocity below 6.0 fps 4) allow enough free board to adequately handle a 100-year, 6 hour precipitation event.

Based on maps 5-13 and 5-13E (photographs 33-38) illustrating how the stream channel existed pre-mining, the area is a very rocky, alluvial/colluvial environment – providing adequate armoring material. However, the plan must provide options should excess bedrock or large colluvial blocks hamper installation of the proposed graded channel. Requirements include eliminating excessive pooling of water (if excessive bedrock is encountered – potentially saturating the toe of the fill); potential needs to armor the stream bank opposite the toe in bedrock areas; and increased grades and velocities of sections following bedrock (assuming it is encountered).

Section 4.2 – Reclaimed Area Drainage Control of Appendix 7-4 identifies the primary sediment control as extreme-roughening or "gouging" of the surface with the a backhoe. Prior to removal of sediment ponds, a series of four (4) silt fences will be installed across the main drainage channel. These silt fences will remain as final treatment for runoff from the reclaimed site until Phase II Bond requirements are met.

The Division requires West Ridge Resources, Inc. to provide additional sediment control measures. The re-alignment of the channel assumes there will be little soil development – potentially there will be more of a problem with bedrock. However, the plan calls for armoring of the stream bank only along the toe of the reclaimed highwall. The Division requests that any portions of the re-aligned stream channel with greater than 2-feet of soil development be armored. This will be consistent with the armoring of the toe, and should keep the flow within the designed channel.

Findings:

The information provided does not adequately address the minimum requirements of the Reclamation Plan – Hydrologic Information section of the regulations. The following must be addressed in accordance with:

R645-301-742.311, -.312, -.313, -.314, Appendix 5-9 needs to provide: 1) calculations for velocity based on the new channel design; 2) designs indicating how channels with velocities greater than 6 fps will be armored; or 3) designs for drop structures to reduce the velocity below 6.0 fps as needed.

R645-301-742.311, 312, .313, .314; Provide options (should they be needed) for channel design in the event excess bedrock or large colluvial blocks hamper installation of the proposed graded channel (see discussion).

R645-301-742.110, .111, .113, .120, .121, The Division requires that any portions of the re-aligned stream channel with greater than 2-feet of soil development be armored.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

West Ridge Resources, Inc. proposes to reclaim the highwall area to a slope between 31.2° and 33.6°. The undisturbed slope above the highwall has an approximate slope of 32°. West Ridge Resources, Inc. plans to apply the methods and materials defined in the MRP to the reclamation project of the highwall area.

The mine site included an "experimental practice" to test preserving soil in place along the bottom of the right fork drainage, adjacent south slope, and near the confluence of the forks with the main canyon drainage. The experimental practice included layering the soil with geotextile and yard fill. At time of reclamation, West Ridge Resources, Inc. will remove these layers, regrade to original contour, and revegetate according to three different site-dependent reclamation plans.

The three site-dependent reclamation plans are for areas that had topsoil removed or no mentionable topsoil prior to disturbance, or were part of the experimental practice. For the areas that had topsoil removed, reclamation will include adding 12-18" of topsoil. For the areas that had no mentionable topsoil prior to disturbance, reclamation will include using the fill material as the growth medium. For the experimental practice, the soil is in place and ready for revegetation methods.

The revegetation methods for all three reclamation plans include:

- Amending the growth medium with noxious weed-free alfalfa at a rate of 2000 pounds per acre.

- Amending the growth medium with fertilizers if needed.
- Gouging the surface in a random pattern with gouge dimensions around 24" x 36" x 18" deep.
- Hydro- or broadcast seeding with four different site-dependent seed mixes.
- Mulching with noxious weed-free straw at a rate of 2000 pounds and a tackifier at a rate of 500 pounds per acre.

The four different seed mixes (Tables 3-2A-D) are for pinyon/juniper, Douglas fir/maple, Douglas fir/juniper, and sagebrush/grass plant community types. The revegetation plans for each of the community types vary slightly. The pinyon/juniper community type will receive a native seed mix. The Douglas fir/maple community type will receive a native seed mix possibly enhanced with locally collected canyon sweet vetch. Drainage channels with this community type will also receive five-gallon transplants of mountain mahogany and serviceberry spaced at five-foot centers. The Douglas fir/juniper community type will receive a native seed mix and containerized plants of Douglas fir at a rate of 300 plants per acre. The sagebrush/grass community type will receive a native seed mix.

The interim and Douglas fir/maple seed mixes will possibly include locally collected canyon sweet vetch. The use of this species depends on field tests and seed availability (Table 3-2B). West Ridge Resources, Inc. must describe (in section 341.300) the field test specific to canyon sweet vetch by including a time schedule showing when the field test will begin, a statement that a qualified biologist will oversee seed collection and application, and a statement that West Ridge Resources, Inc. will notify the Division prior to collection and application. Also, include a statement of measure of success since seed application seems dependent on the field test evaluation (R645-301-341.300).

The sagebrush/grass seed mix includes applying 0.5 PLS pounds per acre of rabbitbrush. The Division recommends reducing rabbitbrush seeding rate to 0.1 pounds (or less) of PLS per acre. This reduction will reduce the probability of the rabbitbrush population out competing the other shrub species in the seed mix and limiting species diversity.

Revegetation: Timing

Table 3-1 is a general reclamation timetable that shows reclamation work completed by end of October of year one.

Revegetation: Mulching and Other Soil Stabilizing Practices

West Ridge Resources, Inc. plans to use noxious weed-free hay as an amendment and straw as mulch. The plan, however, sometimes describes these products as "weed-free" in certain pages (3-11, 3-12, 3-13, and 3-15). West Ridge Resources, Inc. must replace these

descriptions with "certified noxious weed-free" hay or straw (R645-301-353.250). It would be difficult to comply with a weed free standard.

West Ridge Resources, Inc. does not provide the technique planned for the application of straw. The Division does not know whether West Ridge Resources, Inc. plans to blow or crimp the straw mulch on the surface. West Ridge Resources, Inc. must clarify the technique for the straw mulch (R645-301-341.230).

West Ridge Resources, Inc. may accelerate the recovery period through cryptogamic soil-related best management practices (BMP) known at the time of reclamation. One of the cryptogamic soil-related BMP currently known is to separately salvage the cryptogams prior to soil disturbance. Removal of these cryptogams requires a qualified botanist or soilist to oversee this salvaging process. The cryptogams are respread to the soil surface. One of the best times to salvage cryptogams is in the late fall so the cryptogams remain cool (a preferred growth condition) and have less of a chance of drying out following transplant.

Revegetation: Standards For Success

West Ridge Resources, Inc. commits to follow sampling requirements identified in the Division's "Vegetation Information And Monitoring Guidelines" (p. 3-15). West Ridge Resources, Inc. will conduct yearly qualitative vegetation evaluations as well as conduct quantitative vegetation surveys throughout the 10-year responsibility period. Regulations require quantitative vegetation surveys during years nine and ten (refer to R645-301-357.200).

West Ridge Resources, Inc. postmining land use is grazing and wildlife.

Findings:

The Division considers information in the application adequate to meet minimum regulations associated with the TA section Revegetation - Reclamation Plan. Prior to approval, West Ridge Resources, Inc. must act in accordance with the following:

R645-301-341.300, Describe (in section 341.300) the field test specific to canyon sweet vetch by including a time schedule showing when the field test will begin, a statement that a qualified biologist will oversee seed collection and application, and a statement that West Ridge Resources, Inc. will notify the Division prior to collection and application. Also, include a statement of measure of success since seed application seems dependent on the field test evaluation.

R645-301-353.250, Replace "weed-free" descriptions with "certified noxious weed-free" hay or straw.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

The approved MRP utilizes boulders (Appendix 5-5, Section 4e) and scarification 6 – 12 inches (Section R645-301-542.200, page 5-49) and extreme gouging with dimensions approximately 24" x 36" x 18" deep (Section R645-301-341, page 3-11). These measures will remain unchanged with the Alternate Highwall Reclamation Using a Smaller Vertical Angle Slope (Appendix 5-9).

Findings:

The information provided meets the requirements of the regulations for applying the best technology available to stabilize surface areas.
West Ridge Resources, Inc.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Reclamation Backfilling And Grading Maps

In Appendix 5-9, Plates 1 through 3 and Figures 3 and 4 provide the majority of the requested illustrations. However, the Division still requests profiles of both the proposed channel and the original channel illustrating the gradient of both channels. As an example, the original grade drops approximately 35-feet over approximately 520-feet of length, and the proposed channel drops the same 35-feet over approximately 480-feet of length.

Findings:

The information provided does not adequately address the Reclamation Plan – Maps, Plans, and Cross Sections of Reclamation Operations section of the regulations. The following needs to be addressed in accordance with:

R645-310-731.720, -760, Provide a profile of both the proposed channel and original channel illustrating the gradient of both channels.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

General

West Ridge Resources, Inc. did not give the Division updated information on the reclamation costs. At a minimum, West Ridge Resources, Inc. must give the Division reclamation costs that include the additional costs to:

- Place additional fill along the highwall area.
- Remove the topsoil along the stream channel.
- Reconstruct the stream channel.

Findings:

The information provided in the application is not considered adequate to meet the minimum requirements of the regulations. Before approval, West Ridge Resources, Inc. must provide the following in accordance with:

R645-301-830.120, West Ridge Resources, Inc. must update the reclamation cost estimate so that it includes: the cost to place additional backfill along the highwall, the cost to remove and replace topsoil in the relocated stream channel in order to reclaim the slope to the proposed smaller vertical angle.

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

EXPERIMENTAL PRACTICES MINING

Regulatory Reference: 30 CFR Sec. 785.13; R645-302-210, -302-211, -302-212, -302-213, -302-214, -302-215, -302-216, -302-217, -302-218.

Analysis:

Appendix 2-6, West Ridge Mine Experimental Practice In-Place Topsoil Protection, details protecting topsoil resources in-place for (1) buried topsoil areas, and (2) buried RO/RL (rock outcrop/rubbleland) Travessilla Complex soil area. These two combined areas account for 16.75 acres of the total 29 acres of disturbed area.

(1) Buried Topsoil Areas

The West Ridge Resources topsoil protection protects in-place soil with a layer of geotextile fabric. The geotextile fabric provides a protective barrier between the existing soils and the imported fill materials used to construct the mine pads. By utilizing this procedure, soils were not only preserved in-place, but the existing stream channel geomorphology and original ground surface configuration were also preserved. Approximately 4.75 acres of the proposed 29-acre disturbed area were preserved using the geotextile fabric.

(2) Buried RO/RL Travessilla Complex Areas

The buried RO/RL Travessilla Complex mapping was also included in the Experimental Practices. As stated in the Order-III soil survey, the RO/RL Travessilla Complex unit contains 35% soils by volume (25% Travessilla plus 10% other soils) that supports a significant vegetation community. As stated in the plan, the RO/RL areas were not covered with geotextile, but instead, fill was placed directly over the existing ground surface which was marked with brightly colored marker flagging strips placed on 8-foot centers for the purpose of identifying the original surface during reclamation and excavation of the pad fills. Marker strips were used on approximately 12 of the 29 acres of the disturbed area.

Implementation of a highly engineered 40-degree slope as described in previous applications (July 14, 2000; September 18, 2000; March 16, 2000; July 2 & 14, 2000; January 15, 2002; August 15, 2002; March 17, 2003) were determined by the Division to be unacceptable due to the exacting nature of construction which was based on questionable assumptions. The

driving factor in the design of the 40-degree slope was keeping the toe of the slope at the lower bench in to protect the In-Place Topsoil.

The Division requested that the Permittee provide an alternative for consideration that was environmentally sound (Technical Analyses dated April 12; November 26, 2002; and June 16, 2003).

(2) *Appendix 5-9 and The Experimental Practice*

A reclamation design for a 31.2 to 33.6 degree slope has been presented in appendix 5-9. This slope would affect the experimental practice between cross sections 23+00 and 28+00 shown on Plates 1 through 3 of appendix 5-9. The area of buried topsoil to be affected would be 400 ft x 80 ft or approximately 0.74 acres (sec II, appendix 5-9). The application indicates that the 0.74-acre area would be 7.4% of the experimental practice area. By Division calculations this represents 15.5% of the buried topsoil portion of the experimental practice and 0.04% of the entire experimental practice area that includes both buried salvageable topsoil and buried Rockoutcrop/Rubbleland Travessilla complex. A deficiency requesting verification of the percentage of buried topsoil affected by appendix 5-9 has been requested.

There would be no additional disturbance to the south-facing slope of the right fork of C Canyon according to the cross sections shown in Plate 2 of Appendix 5-9.

The Division is of the opinion that the successful revegetation of the site takes precedence over the experimental practice. To achieve a stable and revegetated site, Appendix 5-9 should be the approved method of reclamation. The experimental practice will be reduced in size by 15.5% of the buried topsoil area. The topsoil will not be lost, but will be harvested as it is encountered in the process of moving the channel (Appendix 5-9, Section II and IV).

The significance of the alteration to the experimental practice was determined based upon the affect to the in-place topsoil. No affect on the buried RO/RL Travesilla Complex areas of the experimental practice is expected. These areas comprise 12 acres, but are not indicated on Map 2-2.

The Division Soil Scientist is of the opinion that the successful revegetation of the site takes precedence over the experimental practice. To achieve a stable and revegetated site, Appendix 5-9 is the preferred method of reclamation.

Findings:

The information supplied does not meet the requirements of Reclamation Plan, Topsoil Subsoil. Prior to approval, the Permittee must provide the following:

SPECIAL CATEGORIES

R645-301-121.200, The Permittee should verify the acreage of buried topsoil in the experimental practice to be affected by the Alternate Highwall Reclamation plan as stated in Section II, Appendix 5-9, because Division calculations indicate that 15.5% of the buried topsoil will be affected rather than 7.4%.

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